Spectroscopic Personal Radiation Detector and Isotope Identification Network

BNC

Features:

- Meets demands for first responders and reachback support
- Highly sensitive scintillation detectors
- Easy to use, two button operation
- ANSI Compliant library, customizable to application needs
- Hermetically sealed shockproof case
- Integrated wireless transmission of critical data

Applications:

- First responders
- Customs and border patrol
- Police and Fire
- Emergency teams and HazMat teams
- Security guards, Military

Model 1703MB/GNB

1703MB Gamma with Spectroscopic Gathering
1703GNB Gamma and Neutron with Spectroscopic Gathering

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Breakthrough Technology

A New Generation of Gamma/Gamma-Neutron Pagers

Berkeley Nucleonics Corporation (BNC) introduces the Model 1703MB/GNB, a new generation of Gamma/Gamma-Neutron Pagers for use by the emergency response community. These sophisticated devices combine the rugged, simple interface the industry expects with state-of-the-art data and communication technologies, unprecedented reachback support, and analytical processing power. While operating much like conventional radiation detection pagers, spectroscopic personal radiation detectors (SPRD) collect and archive spectroscopic data.

Spectral gathering functionality allows central command to analyze the data from radiological incidents. The critical spectral data files are transmitted wirelessly from the pager to any Windows® mobile compatible PDA for further analysis, isotope identification or emailing to homeland security. This radiation identification system is not tied to proprietary GPS or transmission technologies. With Bluetooth technology and other communication options, the Model 1703MB/GNB can tie into any standing communication or data transmission network.

Stand-Off Detection and Remote Analysis

Using a Model 1703MB/GNB with its highly sensitive CsI detector, a first responder can locate the source of radiation, place the spectroscopic personal radiation detector close to the source, and then move to a safe distance to evaluate data using a PDA. This allows the user to obtain statistics and perform isotopic identification, reduce unnecessary exposure, and preserve worker safety. The stand-off ability of the Model 1703MB/GNB represents a new technique for safely analyzing unknown sources. Infrared and wired USB connections are also available.

In addition to spectroscopic collection and data storage, the SPRD family of radiation detectors offer unprecedented remote data access. The spectra collected, as well as alarm thresholds, can be reviewed in real time from a remote location. For smaller, non-critical networks, simple TCP-IP protocol and commercial mapping solutions are an ideal fit.

Decision Support System (DSS)

In a climate that demands deployment of a variety of radiation detection systems, from small handheld devices to large portals, the need for advanced software to assist in operational coordination has become apparent.

- DSS supports the operational needs of radiation detection device users through the integration of policies and decision-tree logic which enables end users to access information and protocol flowcharts when addressing radiological issues.
- Instant access to historical scenarios can give real time guidance to smaller or less experienced teams who are responding to alarms for the first time.
- Because DSS scenario templates are easily migrated, agencies can develop comprehensive DSS intelligence or leverage the DSS modules of related or parent organizations over time.

Software Solutions

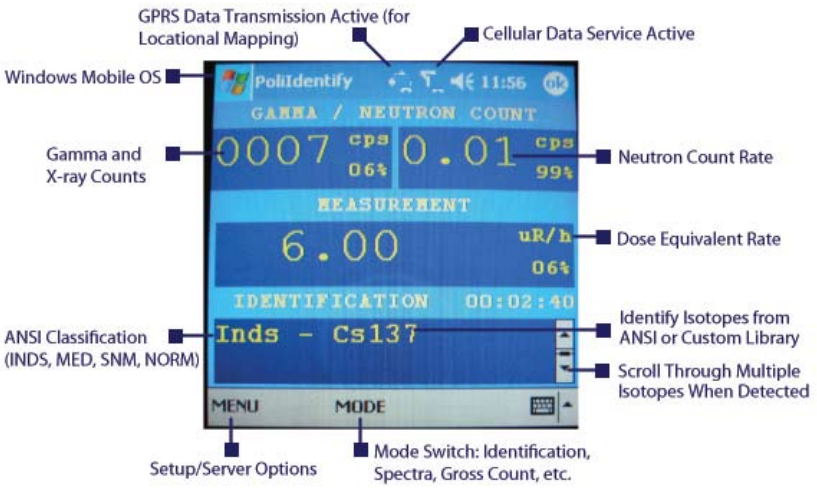
Bluetooth SPRDs are compatible with several software packages which make advanced features easy to use by personnel at any technical level, from first responder to health physicist. Other commands, such as threshold adjustments or alarm silencing, can be accomplished quickly through the user-friendly applications. Software options are outlined below.

Poli-Terminal-IPAQ	Utility for IPAQ Smartphone	P/N 6982
This simple utility allows collection of data, local review of gamma (and neutron) detection levels, and transfer of information over network.		
Poli-Terminal-XP (same as P/N 6982 but designed for Windows XP based system)		P/N 6983
Poli-Identify-IPAQ	Utility for IPAQ Smartphone	P/N 6984
Software utility includes Poli-Terminal, and also allows collection and storage of spectroscopic data. It also enables local or networked review of gamma spectroscopy, and identification of isotopes.		
Poli-Identify-XP (same as P/N 6984 but designed for Windows XP based system)		P/N 6985
RadWitness-XP	Server-based application	P/N 7002
This application was designed for a control center and is scalable to 500 remote 1703GNB users.		

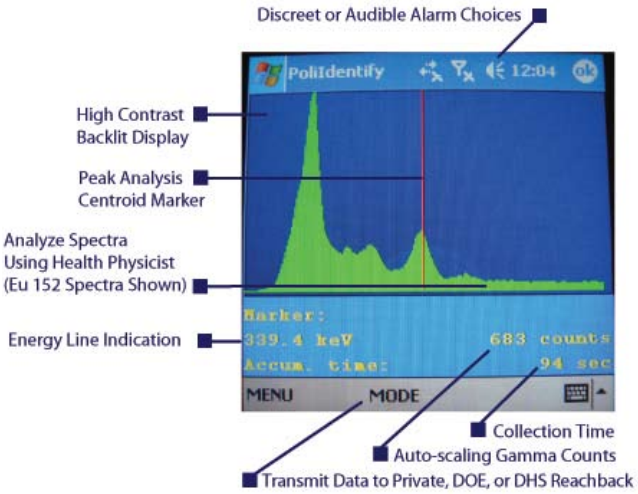
Tools to develop your own server support and back-end data management are available for applications supporting larger user numbers. You may host GPS mapping and data review functions, or introduce a facility-specific Decisions Support System (DSS) module. With a full mapping solution and DSS, your state-of-the-art network offers unprecedented value.

- Secure all real-time data / communication history in off-site storage
- Monitor in real time by your expert group
- Enable and manage remote alerts (geo-fence, rate of change, threshold, etc.)
- Deploy to any scale appropriate to your organization
- Integrate into other state and federal networks
- Google Earth support

Poli-Identify Simple Mode



Poli-Identify Advanced Mode



Case Scenario: Discrimination of NORM in a Public Setting

A security guard with minimal knowledge of radiation measurements may be unsure how to proceed in the event radioactive isotopes are detected in a crowd at a public venue. However, an effective DSS system bridges the knowledge gap and can be used to direct the actions of security personnel should radioactive isotopes be detected at a large public event. Let's imagine that the 1703GNB notifies personnel of a NORM radiation source in an individual who claims to be a recent medical patient. DSS provides expert advice to the users of SPRDs by directing them through a series of simple questions tied into Decision-Tree logic on their PDA. The DSS system will analyze the spectroscopic data collected, and if DSS suspects that the offending source may be Iodine, the DSS will guide the user through steps to confirm the strength and location of the source in the suspect's body. By coupling integrated artificial intelligence with proper end user response protocols, the identification and disposition of an offending source can be efficient and non-disruptive. The DSS system mitigates delays in reachback and offers actionable protocol to an SPRD user regardless of knowledge level.

Essential Services

To address the complexity and benefits of using Spectra Gathering Personal Radiation Detectors over conventional PRDs, our team of health physicists and first responder trainers offer a variety of support services. From classroom exercises to onsite field testing, Berkeley Nucleonics has built an enhanced support architecture to give you application-specific solutions. We offer onsite and regional training programs, custom application development, and a robust reachback program that supports a range of radiation detection and chemical detection products.

Specification	PM1703MB	PM1703GNB
	Detector:	
- gamma	CsI(Tl)	CsI(Tl)
- neutron	—	Li6 (Eu)
Dose rate:		
- gamma	1 – 9999 µR/h (0.01 – 99.99 µSv/h)	1 – 9999 µR/h (0.01 – 99.99 µSv/h)
- neutron	—	0.01 – 999 s-1
Response time:	0.25 seconds	0.25 seconds (gamma)
Radionuclide identification using Bluetooth communication with external Pocket PC or Smartphone:	• Special nuclear materials (SNM) • Medical radionuclides • Naturally occurring radioactive materials • Industrial radionuclides	
Battery lifetime:	up to 1000 hours	up to 800 hours
Designed to comply with:	ITRAP/IAEA requirements, ANSI 42.32, 42.33(1), and 42.34 standard	
Alarm type:	visual, audio, vibration	
Data recording:	1000 points	
Operating temperature:	-22°F to 122°F (-30°C to 50°C)	

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